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In the linen scale-ribbon are drawn black bands measuring 2^{cm}, separated by increasing series from 2 to 30^{cm}. The zones coinciding in width with the separation-zones will be marked with a pencil between the bands. Two other observers will measure the width of the bands by comparison with a pasteboard with painted bands separated by one half centimeter. Another six could study the coloration of the bands by means of special pasteboards with painted bands in several colors, black, earthy, gray, etc.

With the data of the first seven observers, and the geometrical studies of every two or every three of the six planes, we shall have all the necessary elements to geometrically calculate the position in space of the generating elements of the undulating bands, and we shall be able to advance most confidently conclusions about the true cause of so interesting a phenomenon.

MADRID, September 3, 1905.

PLANETARY PHENOMENA FOR MARCH AND APRIL, 1906.

By MALCOLM MCNEILL.

PHASES OF THE MOON, PACIFIC TIME.

First Quarter,	Mar. 3,	$1^h 28^m$ A.M.	First Quarter,	April 1,	$8^h 2^m$ A.M.
Full Moon,	" 10,	12 17 P.M.	Full Moon,	" 8,	10 12 P.M.
Last Quarter,	" 17,	3 57 A.M.	Last Quarter,	" 15,	12 36 P.M.
New Moon,	" 24,	3 52 P.M.	New Moon,	" 23,	8 6 A.M.

The vernal equinox, the time when the Sun crosses the equator from south to north and spring begins, is on March 21st, 5 A. M. Pacific time.

Mercury is an evening star on March 1st, but is too near the Sun to be seen, setting only a little more than half an hour after sunset. The distance from the Sun increases rapidly; by the middle of the month the planet remains above the horizon more than an hour and a half after sunset, and can be easily seen in the evening twilight for a week or more before and after that date. It reaches its greatest eastern elongation (18° 31′) on March 18th. This greatest elongation is much smaller than the average, as *Mercury* is at the time only six days from perihelion, having passed that point on March 12th. After passing greatest elongation the planet draws near the Sun, passing conjunction and becoming a morning star on April 4th. After that, it recedes from the Sun, and by the end of the month has nearly reached greatest west elongation. It will then rise a little less than an hour before sunrise, and may possibly be seen in the morning twilight. On March 27th *Venus* and *Mercury* are in conjunction, the latter being 4° 46′ north. They are, however, rather too near the Sun at the time to be easily seen.

Venus passed superior conjunction with the Sun and became an evening star on February 13th, but does not get far enough away from the Sun to be easily seen until after the middle of March. On April 1st it remains above the horizon about an hour after sunset, and this interval is increased about half an hour during the month. Its greater brightness, even in its present unfavorable position, allows it to be seen much nearer the Sun than is the case with *Mercury*. Toward the close of the month *Venus, Mars,* and *Jupiter* are all in the same quarter of the heavens in the order of distance from the Sun as named, but none of the three reach conjunction with each other until May.

Mars is also an evening star, and sets a little earlier than during January and February,—at 8:58 P. M. on March 1st and at 8:40 P.M. on April 30th. Its apparent distance from the Sun diminishes from 35° on March 1st to 19° on April 28th, and it moves 42° eastward and 14° northward among the stars from *Pisces* through *Aries* and into *Taurus.* At the end of April it lies between the *Pleiades* and the first-magnitude red star *Aldebaran,* the brightest star in the constellation *Taurus.* Its actual distance from the Earth is still increasing, although not as rapidly as it has for some months, and the increase will continue at a diminishing rate until the latter part of July. By the end of April its brightness will be within about twenty per cent of the minimum; but it will still be brighter than the Pole Star and may be seen as long as it remains above the horizon, somewhat more than an hour after sunset.

Jupiter is still an evening star, rather farther from the Sun than the others already mentioned. It does not set until after midnight on March 1st, and at the end of April it remains above the horizon until after 9 o'clock. It is in the constellation *Taurus,* and during March and April moves 11° eastward and 2° northward. On March 1st it is a little south of the *Pleiades,* and at the end of April it is about 5° north of *Aldebaran, α Tauri.*

Saturn passed conjunction with the Sun on February 24th and became a morning star, but does not move far enough away from the Sun to be seen in the morning twilight until nearly the end of March. On April 1st it rises about an hour before sunrise, and on April 30th a little more than two hours before the Sun. Toward the end of April the planet is far to the south of the Sun, and its rising point on the horizon is about 30° south of that of the Sun. The rising point of the planet changes slowly, while that of the Sun moves rapidly northward during the spring.

Uranus is a morning star, rising at about 3:30 A. M. on March 1st and at about 11:30 P. M. on April 30th. It is in quadrature with the Sun—that is, at right angles to it as seen from the Earth—on March 29th. It is in the constellation *Sagittarius* a short distance north of the milk-dipper group, moves about 1° eastward until April 13th, and then begins to move slowly westward. There is no bright star near enough to make identification easy.

Neptune is in almost exactly the opposite part of the sky, being above the horizon, while *Uranus* is below. It is in the constellation *Gemini* several degrees west and south of *Castor* and *Pollux,* the principal stars of the constellation. It is far too faint to be seen without the aid of a telescope.

(FIFTIETH) AWARD OF THE DONOHOE COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Michel Giacobini, Astronomer, Nice, France, for his discovery of an unexpected comet on March 26, 1905.

Committee on the Comet-Medal:
W. W. CAMPBELL,
WM. H. CROCKER,
CHAS. BURCKHALTER.

SAN FRANCISCO, January 11, 1906.

(FIFTY-FIRST) AWARD OF THE DONOHOE COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to EMIL SCHAER, Astronomer, Geneva, Switzerland, for his discovery of an unexpected comet on November 17, 1905.

Committee on the Comet-Medal:
W. W. CAMPBELL,
WM. H. CROCKER,
CHAS. BURCKHALTER.

SAN FRANCISCO, January 11, 1906.

(FIFTY-SECOND) AWARD OF THE DONOHOE COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to MICHEL GIACOBINI, Astronomer, Nice, France, for his discovery of an unexpected comet on December 6, 1905.

Committee on the Comet-Medal:
W. W. CAMPBELL,
WM. H. CROCKER,
CHAS. BURCKHALTER.

SAN FRANCISCO, January 11, 1906.